

A STUDY OF THE CORRELATION BETWEEN JOB
SATISFACTION AND JOB PERFORMANCE IN A
SAMPLE OF USN ENLISTED MEN

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THESIS

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by

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ABSTRACT

A study was performed investigating the correlation between Job Satisfaction and Job Performance in a sample of enlisted naval personnel. Measurements of Job Satisfaction were compiled from a job questionnaire devised by Brayfield and Rothe. Job Performance marks were compiled from supervisors' ratings. Statistics were computed using the primary variables (satisfaction and performance), as well as five demographic variables, for the sample as a whole, and then again for each of six occupational groups within the sample. Statistical findings supported the hypothesis that a positive correlation existed between Job Satisfaction and Job Performance in several diverse Navy enlisted occupations.

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I. INTRODUCTION

For centuries the existence of some form of military force has been part of every enduring nation. The military has historically been so much a part of society that military service was expected, if not anticipated, by all males. The cultural evolution of today's society has created a view of military service which questions its existence as an absolute necessity. Because of these changing views, the military is faced with the problems of presenting military service as a meaningful occupation.

Among the aspects of military employment, or any employment for that matter, which must be monitored to maintain a given level of efficiency or usefulness, are organizational productivity and its determinants. This paper seeks to investigate the relationship between two variables generally accepted as being related to organizational productivity. These are job satisfaction and job performance. Job satisfaction is, briefly, taken to be the overall perceived gratification that one receives from the various facets of one's work environment. Job performance is here taken as the individual's contribution to organizational productivity.

A great deal of attention has been devoted in the last two decades to the investigation and interpretation of the relationships between job satisfaction and job performance. In the literature, there is a dearth of information which may be directly applied to the military situation. The orientation of empirical studies seems to have been towards isolated and specific problems in the civilian, industrial world, and to some degree

towards situations in specific professional communities. Few studies were conducted in such a way that generalizations of findings could be made to other occupational fields, and least of all to military organizations.

Perhaps the most serious drawback of past studies has not been the experimental samples, but rather the lack of concurrence in definitions of variables. Comparisons of studies yield either extremely general definitions, sketchy definitions, or no definitions of pertinent variables at all. Reviews of the existing literature yield mixed conclusions. D.P. Schwab and L. L. Cummings in a recent review stated:

"...although we have noted some obvious differences and points of contrast between various theoretical viewpoints, rigorous comparison and evaluation is made difficult by the fact that there are few commonly defined constructs across various theories [Schwab and Cummings, 1970, p. 421] ."

Prior to the above observation, it had been noted that most of the variables studied and compared lacked adequate or consistent conceptual definitions and, "...in some instances the same term is used to designate vastly different referents [Vroom, 1964, p. 4] ." It has been most frustrating to this author to consult two articles concerning what were thought to be identical terms, only to find on close examination that they were talking about somewhat different concepts.

It was with these problems in mind that a search was made for instances in which applications of existing Satisfaction-Performance theory might be applied to the enlisted naval environment. More specifically, it was the object of this study to attempt to determine if a positive satisfaction-performance relationship did exist.

II. SYNOPTICAL REVIEW OF RELEVANT THEORIES

It was not intended that this paper be a review of the literature per se, as two out of three writings in the area seem to be just that. However, a very brief look at some of the Satisfaction-Performance theories is in order to provide an orientation for the reader.

Among the first research in this area was that carried out by Hugo Munsterberg early in this century. His observations of elevated railway employees and switchboard operators led to a general interest in human relations in occupational environments. Wendell French quotes from Munsterberg's work:

"... no one ought to underestimate the importance of higher motives, intellectual, aesthetic, and moral motives, in their bearings on the psychological impulses of the laborer. If these higher demands are satisfied, the whole system gains a new tonus, and if they are disappointed, the irritation of the mental machinery may do more harm than any break in the physical machine at which the man is working [French, 1970, pp. 19-20]."

The implicit point that Munsterberg made is that performance is directly related and dependent upon satisfaction of what Maslow would classify as "love" and "esteem" needs [Maslow, 1943; 1954].

The Human Relations Movement was further inspired by the Hawthorne research of Elton Mayo and F. J. Roethlisberger during the 1920's and 1930's. Different satisfaction-performance relationships seemed to be evident in their studies at different times [French, 1970; Homans, 1941]. The complexity of the satisfaction-performance relationship became

further apparent whereupon, "... the researchers concluded that in a situation involving people, it was impossible to change one condition without affecting other variables [French, 1970, p. 24] ."

The momentum of the research picked up during the 1950's, as A. H. Brayfield and W. H. Crockett further explored the relationships between satisfaction and performance. It was still generally agreed that there was some nonzero, and probably positive correlation between satisfaction and performance, but the strength of the relationship was a point of growing contention. The hypothesis was then voiced that "... production may be only peripherally related to many of the goals toward which the industrial worker is striving... [Brayfield and Crockett, 1955, p. 42] ."

The works of Frederick Herzberg and colleagues placed an increased emphasis on the concept of motivation [Herzberg, 1959] . Saul Gellerman, in a review, stated:

"Systematic research into the motivation of people at work has had a late start, partly because the sources of other people's behavior were thought to be so self-evident that research hardly seemed necessary. It is already clear, however, that we are not nearly as knowledgeable about the reasons why people behave as they do as we once thought we were. Research results indicate that many traditional ideas about motivation are too simple, or too pessimistic, or both [Gellerman, 1963, p. 290] ."

Herzberg offered a new approach to the problem [Herzberg, 1959] . He parted with the traditional theory that the concept of satisfaction could be characterized along a hedonistic continuum. He felt that dissatisfaction was a different concept and not merely the lack of satisfaction. Therefore, there should be two distinct continua. He further described satisfiers as being associated with job content and as functioning as motivators .

Dissatisfiers were viewed as being more often associated with job context or environment, and these factors, rather than providing motivational impetus, were seen as being preventive in nature. That is, they must be met to some minimal degree before satisfiers could become fully operational. Herzberg labeled dissatisfiers as "Hygiene factors" [Herzberg, 1959]. Briefly, Herzberg's Two-Factor theory states that:

1. Motivators when present increase the satisfaction derived from work and motivate the worker toward increased performance. When absent, motivators do not result in dissatisfaction.
2. Hygiene factors, when lacking, lead to worker dissatisfaction with their jobs. When gratified these factors tend to prevent dissatisfaction but do not result in satisfaction and increased performance. [Herzberg, 1959; 1966].

While the Two-Factor concept was a welcome innovation, it also created theoretical disparities. Herzberg, commenting on his review of the literature, may have also foreseen conflict with his own concepts when he attributed contradictory data to two possible sources of discrepancy.

"It may be that the lack of consistency among various studies relating productivity to job attitudes may be due to unknown variables in the methods with which the surveys were conducted."

Further:

"A second possibility is that the contradictions among various studies may reflect actual differences either in the workers surveyed or in their work situations which would affect the way in which attitudes determined output [Herzberg, 1957, p. 101]."

Herzberg, and later E. E. Lawler, III, recognized a strong connection between worker satisfaction and both job turnover and absenteeism [Porter and Lawler, 1968; Lawler, 1970].

In his studies on satisfaction and performance, V. H. Vroom gave support to previous findings that a definite relationship exists between satisfaction and both absenteeism and turnover, but that the relationship of satisfaction to performance, if any exists, is too complex to describe at this time.¹ He cautions against over-generalization based upon loose definitions, and he stresses the importance of further investigation of satisfaction-performance relationships [Vroom, 1964] .

In general, the Satisfaction-Performance theories admit the existence of several variables intervening in the satisfaction-performance relationships, among these are sex, occupation, education, income, marital status, and length of employment [Herzberg, 1957, ch. 2; French, 1970, ch. 6; Vroom, 1964, ch. 6] . Seldom has any one study succeeded in holding the effects of these variables constant.

Some authors have attempted to determine cause-effect relationships between satisfaction and performance [Schwab and Cummings, 1970] . There have been findings to support the hypotheses that satisfaction ("motivators" only) leads to performance [Herzberg, 1959] , and that performance leads to satisfaction [Porter and Lawler, 1968] . One author suggests a model in which satisfaction and performance may be causal factors for each other, because of feedback effects [Sutermeister, 1969] . As intriguing as they may seem, the cause-effect relationships between satisfaction and performance are beyond the scope of this paper.

¹See Brayfield and Crockett (1955), for early mention of satisfaction relationships with absenteeism and turnover.

III. DEFINITIONS

The area of specific definitions was, perhaps, the most difficult one for this author to approach, because of the variety of definitions applied by the different researchers to the many constructs and terms which they have used in their works. An absence of specific definitions has been noted by various reviewers of the literature [Brayfield and Crockett, 1955; Vroom, 1964]. In the writings on this topic there are often implied similarities among the concepts of job satisfaction, job attitudes, and morale. Also, overlap was found in the usages of the terms performance, productivity, and motivation. The primary concepts to be addressed in this section are job satisfaction and job performance. As such, they are redefined below in a way that is compatible with the definitions found in most of the works cited throughout this paper.

A. JOB SATISFACTION

The most universal, and yet specific, definition of job satisfaction is given by Wanous and Lawler [1972] which is paraphrased here: Job satisfaction is the overall algebraic sum of the perceived gratification of wants, needs, or desires, achieved or realized as a direct result of the present state of employment. In general, positive job attitudes are equivalent to job satisfaction. One recent author defined satisfaction to be:

"... a general attitude which is the result of many specific attitudes in 3 areas: specific job or work characteristic factors, individual personality, characteristics, and personal relationships outside the immediate work environment [Stoloff, 1971, p. 1]."

The definition of Wanous' and Lawler's is consistent with Stoloff's as long as the personal relationships outside the immediate work environment are a direct result of the condition of employment. A distinction has also been made between overall job satisfaction and satisfaction with a particular facet of one's job [Wanous and Lawler, 1972].

B. JOB PERFORMANCE

Job performance is defined as the individual's contribution to organizational productivity. It is a form of output. In an organization such as a military unit where specific output is not defined, the individual's job performance is his contribution toward the successful completion of the organizational mission.

Motivation is taken to be an intervening variable between satisfaction and performance [Schwab and Cummings, 1970]. In the terms of an operational definition, motivation is here defined as the instance of providing a tendency to act. Motivation attenuates with time and, therefore, must be constantly re-inspired in order to cause performance [Young, 1961]. One common theory is that performance is a function of ability times motivation [Vroom, 1964; Sutermeister, 1969]. Additionally, productivity may be thought of as the product of performance times technology [Sutermeister, 1969, p. 49].

IV. HYPOTHESIS

A basic assumption of this study was that the variables, "satisfaction" and "performance," could be measured, at least in an ordinal sense. The procedures employed in this thesis are explained with a view toward further investigation in the area. It was felt that interest in the field will become increasingly popular to military managers on all levels, especially in the light of the "All Volunteer" concept of the Armed Forces. An investigation of the satisfaction-performance relationship with an eye toward military applications quickly reveals that almost all extant research has been done in civilian settings. Hence, one must be careful in generalizing results and findings to the highly structured and less autonomous environment of the military enlisted man.

Because of the nature of enlisted military employment, specifically operational naval employment, the hypothesis was put forth that there exists a direct and positive relationship between job satisfaction and job performance. While the theorized effects of satisfaction upon absenteeism and job turnover in civilian industry were not disputed, it was felt that most previous studies were conducted in an environment in which the employee maintained a very large degree of autonomy. That is, he could claim sickness, come to work late, or find reason to avoid coming to work without incurring serious repercussions. Further, he could terminate his employment on short notice and seek similar employment elsewhere. In

the military environment, such a relationship of satisfaction to absenteeism and job turnover is greatly discounted by the nature of the environment in which an enlisted man works. At least in the short term, job turnover and absenteeism in the military cannot be considered equivalent to the usual turnover and absentee interpretations found in the civilian sector. Enlistment contracts remove the option for short term job turnover and the overriding presence of military discipline attaches completely different consequences to absenteeism from those found in the civilian environment. The nature of a military environment, particularly for enlisted personnel residing in barracks, or on board ship, makes it extraordinarily difficult for the individual to fraudulently "call in sick" or offer some other spurious excuse for not reporting to work. It was hypothesized that the results of dissatisfaction derived from naval employment would be manifested in other forms of behavior rather than in absenteeism and turnover. Specifically, it was felt that dissatisfaction would emerge in some form of on-the-job apathy, negativism, work slowdown, resignation, overt confrontation, sabotage, willful destruction of property, and so forth. Each of these mechanisms is counterproductive, in some degree, to the completion of specific military missions, and in turn, is likely to be reflected in an individual's job performance.

V. SAMPLE

It was originally intended to concentrate investigation on sample data drawn from three categories of enlisted occupational types. These were to be occupational fields which were of an operational nature, and preferably, fields which were associated with naval aviation. One reason for the association with aviation was that by so limiting the occupational variables, a significant satisfaction-performance correlation would be more visible and not masked by variation due to occupational differences. More candidly, aviation was selected as the common denominator, because of the author's familiarity with naval aviation, the opportunity for further expansion of the study at a later date, and because of the propinquity of aviation personnel at the time research data were needed. There were several hundred aviation associated enlisted personnel within a reasonable distance such that the author's sample was designed to be 50-75 Aviation Mechanics, 50-75 Personnelmen and Yeomen working with aviation squadrons, and 50-75 Antisubmarine Sensor Operators assigned to operational flight crews. Thus, a large sample could be assembled from relatively few occupational backgrounds allowing some external variables to be controlled.

However, because of constraints placed on research by Naval Postgraduate School military authorities, the only sample population available for research was a unit of 185 enlisted personnel in thirty-four different

ratings.² Though cooperation was quite satisfactory on the part of the sample population's administrative personnel, the extent of influence on the data due to having so many different occupational fields became a matter to be investigated in this thesis. Of the 185 personnel available, 105 (57%) participated in providing data used in this study. Only two of the enlisted personnel from whom data were obtained were female. The median age of the respondents was 27 years, with a range of 19 to 52 years. The median education was 12.2 years, with 36% of the sample population having received some college education. The median active duty time was 7.8 years, with a range of 0 to 28 years. The range of pay grades ran from E-2 through E-9, with approximately 25% at pay grade E-5, and 25% at pay grade E-6. Appendix C offers descriptive demographic figures for the sample population.

²Rate is the enlisted rank; it corresponds to enlisted pay grades E-1 through E-9, inclusive. Rating is the enlisted occupational field. Similar ratings were grouped to compose each of the groups referred to later in this study.

VI. PROCEDURES

A. OVERVIEW

The diverse ratings were arranged into six groups according to the similarities among the normal job assignments for the ratings. The occupational content of each group was as follows:

1. Group A --Steward (n=18)
2. Group B --Personnelman, Yeomen, Journalists (n=13)
3. Group C --Medical and Dental personnel (n=19)
4. Group D --Electronic associated ratings (n=13)
5. Group E --Storekeepers, Disbursing clerks, Aerologists (n=12)
6. Group F --Mechanical associated ratings (n=30)

Each individual was requested to complete a satisfaction questionnaire, and a list of demographic questions. Anonymity was preserved in order to obtain the maximum degree of frankness in the answers. The questionnaires were completed and sealed in envelopes by the respondents and returned to the investigator by mail.

Performance data were obtained from the respondents' service records as matched by the author to questionnaires via comparisons of demographic data. Fortunately, there were no instances of ambiguity in attempting to match data; the demographic questions provided sufficient information for differentiating among specific individuals.

Descriptive statistics were compiled with each variable in terms of the entire sample (n=105), and then for each group individually. Correlations were also computed, as described below, for each possible pair of variables, again for the entire sample, and then for each group separately.

The data obtained were primarily examined for linear relationships , though the possibility of curvilinear relationships was not rejected . Appendix F shows scattergrams of satisfaction scores vs . performance marks .

B. JOB SATISFACTION MEASURES

The measurement of job satisfaction has received a wide range of interpretation and treatment by various authors , partly because of the latitude in their definitions , and partly because of the difficulty of trying to operationalize an abstract concept . Attempts to quantify job satisfaction have been carried out through questionnaires , check-lists , personal interviews , and investigator observations . For this study , it was desired to employ a medium that would be applicable to a wide variety of occupations , and at the same time to avoid the construction of a completely new instrument that had not been professionally tested for reliability and validity . Ease in scoring was a desired quality , and because of the wide range of cultural and educational backgrounds among the subjects , it was desired that its complexity be kept at a minimum .

Several job satisfaction forms were considered , most of which were either too specific in application , and therefore not suitable for use within military organizations , or too complex in administration for the purposes of this study . Two forms were described by W . W . Ronan [1970] as meeting the criteria stated above for generality and simplicity . These were the "Job Questionnaire" of Brayfield and Rothe , and the Kerr "Tear Ballot." The latter appeared , upon inspection , to be more oriented toward

civilian industry than was considered suitable. Repeated references to "management," and "the company" were felt to be a possible source of confusion to some of the military subjects [Kerr, 1948]. The questionnaire constructed by Brayfield and Rothe appeared to have a greater applicability, especially within a military environment.

The formulation of the Brayfield and Rothe "Job Questionnaire" was centered about the same general criteria that were desired for application in this study. Besides the qualities of generality, simplicity in administration and scoring, and sensitivity to variations in attitude, Brayfield and Rothe listed additional requirements for such an attitude instrument as including: an interesting and realistic nature to invite cooperation from management and employees, insured reliability, and insured validity [Brayfield and Rothe, 1951].

Brayfield and Rothe administered the final version of their questionnaire to a sample of 231 subjects.

"Typically, the subjects were young, unmarried girls without dependents. The average girl in the sample had completed 12 years of schooling. She had been on her present job for more than one year and had been employed by the company for one and three-fourths years. The range of job satisfaction scores for this sample was 25-87. The mean score was 63.8 with an S. D. of 9.4.

"The odd-even product moment reliability coefficient computed for this sample was .77 which was corrected by the Spearman-Brown formula to .87 [Brayfield and Rothe, 1951, p. 310]."

To validate the questionnaire, it was administered to 91 adult night school students in personnel psychology courses, consisting of 49 males and 42 females. The median age was 35 ranging from 22 to 54 years. The range of job-satisfaction scores was 29-89, with a mean of 70.4, and a

standard deviation of 13.2. Because the courses were given in the evening and not necessarily required by the students' employers, "... enrollment in the class was considered to be an overt expression of their interest in personnel work [Brayfield and Rothe, 1951, pp. 310]." They felt that the class members who were employed in personnel related occupations should be more satisfied with their jobs than those who were not employed in occupations related to personnel work. They found that 40 persons were in the "Personnel" group, and 51 in the "Non-Personnel" group. "The mean for the Personnel group was 76.9 with an S. D. of 8.6 as compared to a mean of 65.4 with an S. D. of 14.02 for the Non-Personnel group [Brayfield and Rothe, 1951, pp. 310-311]." The differences between both the satisfaction scores and the variances were significant at the .01 level. Thus, the satisfaction measure received some support, because it differentiated between two known groups, and in the predicted direction.

Later, correlations with other forms were examined. One much used form designed by R. Hoppock in the early 1930's was found to have a correlation of .92 with the Brayfield and Rothe questionnaire [Brayfield and Rothe, 1951, p. 311].

The form itself (See Appendix A) consists of eighteen scored questions, and one practice question. Scoring is on a five point "Likert type" scale anchored at Strongly Agree and Strongly Disagree with three gradations in between. Half of the scored questions are reversed in polarity to discourage subjects from routinely answering all questions alike. The possible range of scores was from 90 for the most highly satisfied to

18 for the least satisfied with a neutral score being 54. The summed scores from this questionnaire were then correlated with a measure of job performance. The job performance measure is outlined in the following section.

C. JOB PERFORMANCE MEASURES

A product oriented organization often allows the evaluation of employees based on some form of output. In the case of this study, and in most military situations, there is no convenient form of "output" measurement. The available methods of performance assessment were, therefore, limited to a self-rating which could have been attached to the job satisfaction questionnaire, personal interviews with the subjects and/or supervisors, and peer or supervisory ratings. The time available dictated that the most practical, and probably the most valid available source of performance data, would be the supervisory ratings. Such data were readily available for most subjects via their most recent "Report of Enlisted Performance Evaluation" (See Appendix B). The raw scores, or evaluation marks, are based on a "4-point" rating scale with 0.2-point increments. The highest and lowest scores possible on this scale are 4.0 and 1.0, respectively.³ Marks of 2.0 and 1.0 are considered unsatisfactory. A score was obtained for each subject by averaging his ratings on items one through five on the form. This method assumes equal weights for each of

³ Numerical grades applicable to the ten graduations are: 4.0, 3.8, 3.6, 3.4, 3.2, 3.0, 2.8, 2.6, 2.0, and 1.0.

the five dimensions. The evaluation form for Chief Petty Officers (pay grades E-7, E-8, and E-9) is slightly different from the form just described. However, for the sake of consistency, only the dimensions corresponding to those on the aforementioned form were scored. Appendix C describes the procedures employed to convert Chief Petty Officer performance marks to a form comparable to those of pay grades E-2 through E-6, inclusive.

D. COMPUTATION

For each respondent, the demographic and survey material yielded eight types of data:

1. Rating (by Occupational Group)
2. Rate (by Enlisted Pay Grade)
3. Age
4. Years on Active Duty
5. Education in years
6. Perceived Years to Remain on Active Duty
7. Job Satisfaction Score
8. Job Performance Mark

The data were analyzed, and descriptive statistics computed for each variable, first for the total sample (n=105), and then for each group separately. Listings of these statistics may be found in Appendix D.

The data were then analyzed for linear correlations using nonparametric statistical methods. The Spearman Rank-Order Correlation (ρ) was computed for each possible pair of variables [Nie, 1970, ch. 11 and 13]. The correlations were computed, first for the entire sample, and then again for each occupational group. A summary of the correlation computations may be found in Appendix E.

The possibility of curvilinear relationships was not specifically addressed in this study. However, to facilitate the detection of any obvious non-linear relationships between job satisfaction and job performance, the values of the two variables were plotted. These graphs are shown in Appendix F.

Finally, it was desired to test the strengths of all the variables previously defined to determine if Satisfaction could be predicted as a function of Performance, Age, Rate, Education, Years of Active Duty, Years Remaining and Occupational Group. It was also of interest to determine if Performance could be predicted from Satisfaction, Age, Rate, Education, Years of Active Duty, Years Remaining, and Occupational Group.

An analysis was conducted using stepwise multiple regression [Nie, 1970, ch. 15]. For this analysis, the data of 75 subjects were drawn from the total sample of 105 subjects. The remaining 30 subjects were retained for cross-validation of the regression results. Multiple regression statistics are summarized in the next portion of this paper.

The regression coefficients from the regression analysis which were found to add significant variance to a multiple "R" were then employed in predictive equations. These equations were applied to the data for the 30 subjects not used in the regression analysis. The predicted values for the variables, "Satisfaction" and "Performance" were correlated with their respective observed values.

The cross-validated "R" values were compared to the original validation "R" values, and the variables contributing to these multiple "R's" were noted.

VII. FINDINGS

A. DESCRIPTIVE STATISTICS

1. Overall Sample

The descriptive statistics for the overall sample (n=105) revealed the following characteristics (See Table I for a summary of descriptive statistics. Appendix D contains a complete listing of the descriptive statistics.) Approximately half of the sample was in pay grades E-5 and E-6, with the distribution skewed slightly toward the high end of the scale. The age distribution showed a median of 27.12, slightly skewed to the older side. Active duty time was clustered about a median of slightly under 8 years. The average amount of education completed was 12 years, or the equivalent of a high school education. The perceived time remaining on active duty had a mean of 5.6 years, but over 25% of the respondents stated that they had one year or less remaining on active duty; most of these were first tour personnel.

Satisfaction scores were skewed negatively. Most scores were well above the neutral value of 54. The mean was 59.4, but the modal score was 65.0. The range of satisfaction scores was from 26 to 82 (18=lowest possible, and 90=highest possible.) The standard deviation of satisfaction scores was 12.6.

Performance marks, like satisfaction scores, had central tendencies on the high side of the scale. In fact, the mean and median were 3.80 and 3.85, respectively, on a 4.0 scale. Their standard

deviation was 0.170. The lowest performance mark for any of the respondents was 3.15, which corresponds to adjective grades indicating acceptable performance in all categories according to the evaluation form.

TABLE I.
SUMMARY OF DESCRIPTIVE STATISTICS

Group	n	Modal Pay Grade	Avg. Age	Avg. Educ.	Avg. Sat. Score	Avg. Perf. Mark
A	18	E-4	34.3	12.8	58.4	3.90
B	13	E-3;E-4	29.8	12.8	58.9	3.80
C	19	E-5	26.1	12.9	56.8	3.77
D	13	E-5;E-6	29.2	12.6	60.8	3.84
E	12	E-5	32.4	12.5	65.5	3.77
F	30	E-6	27.3	12.0	58.8	3.76
Total	105	E-5;E-6	27.12	12.5	59.4	3.80

2. Group A

For group A (Stewards), the distribution of rates centered about the middle pay grades. The age of the average steward was 34.3 years; he had almost 12 years of active service, and a high school education. (The 10 years of Philippine primary and secondary education was converted to 12 years of U. S. equivalent education for easier comparison with U. S. schooled personnel, as 10 years of education is the standard in the Philippines.) It was notable that none of group A had less than four years already on active duty, and none of them indicated that any less than a full 20 year career was expected before leaving active duty. This is explained by the particular rationale behind the entry of Philippine nationals into the

U. S. Navy. Virtually all of them who enlist do so with intentions of serving an entire career--a situation quite unlike the motivational pattern of U. S. enlistees. The Filipino personnel had a mean of over 8 years of perceived active duty time remaining, and a mode of 13 years remaining. The reader should note the difference from the perceived years remaining for the other groups. Group A's mean satisfaction and performance scores both fell slightly above the corresponding means for the whole sample.

3. Group B

Group B, comprised of Yeomen, Personnelmen, and Journalists (n=13), also had some enlisted men from the Philippines in it, but not as many as in group A. The average age of group B was younger than for group A, and the modal number of years on active duty was only 2 years. Again, a high school education was the norm, but an average of only 2.46 years more duty was perceived until leaving active service. Group B's average satisfaction score fell very slightly below the whole sample's mean; their mean performance mark was the same as that of the total sample.

4. Group C

Group C, which was made up of medical and dental personnel (n=19), consisted of personnel who were mostly E-5, with an average age of 26, and an average of about 6.5 years of active duty. The modal figure for years on active duty was 3 years, which fits with the modal figure for perceived years remaining, which was 1 year, inasmuch as those men had a four year obligation. Group C was, therefore, predominantly composed of men who seemed to profess single tour (4 years on active duty)

intentions. The average education completed was slightly more than that of a high school graduate. This group's satisfaction and performance scores averaged slightly below the total sample's average.

5. Group D

Group D, including personnel in electrically oriented rates (n=13), showed a pay grade distribution similar to that of the entire sample. Their average age was 29; on the average, they had completed 9 years of active duty, and a high school education, and had just under 4 perceived years to go in the Navy. Satisfaction and performance scores were slightly above those of the total sample.

6. Group E

Group E, made up of storekeepers, disbursing clerks, and aerologists (n=12), showed a slight tendency toward career mindedness, and all of its averages were above the total sample averages, except for education, which was just over high school level, and performance marks, which were slightly lower than the sample average. This group contained the lowest performance mark of 3.15, thus, in part, accounting for their lower performance average.

7. Group F

Group F, which was the largest sub-sample (n=30), was made up of mechanically related ratings. It was "top heavy," with 13 first class petty officers (E-6). The group's average age was 27 years, with 8.5 years active experience, a high school education, and 6 years perceived, on the average, left before leaving active duty. Satisfaction and performance scores were just slightly below the total sample's average.

B. CORRELATIONS

Correlational findings gave some support to the hypothesis that job satisfaction and job performance are related positively, although the correlations were not as high as expected. For the entire sample, the correlation was .2669, reaching a .01 level of significance when tested against a null hypothesis of a zero correlation. Satisfaction-Performance correlations for the sub-groups were all positive, but there was little similarity in their magnitudes. For Groups A, D, and F, correlations were found to be .4063 ($p \leq .05$), .5417 ($p \leq .05$), and .4245 ($p \leq .01$), respectively. For the other three groups, the correlations were not significant. (See Table II for a summary of Satisfaction-Performance correlations for each group.) The occupational groups which yielded significant Satisfaction-Performance correlations were the stewards, the electrical associated personnel, and the mechanically associated personnel. The clerical and medical ratings reflected a nearly random correlation between satisfaction and performance, as did the group including the storekeepers, disbursing clerks, and aerologists.

From examining the correlational matrices in Appendix E, some further findings can be seen to be important.

In each occupational group, and in the total sample, the variables, "Rate," "Age," and "Years on Active Duty" were highly correlated, but since each of those variables is some function of time, very high correlations were expected.

TABLE II

SUMMARY OF SATISFACTION-PERFORMANCE CORRELATIONS^a.

Group	n	Sat.-Perf. Correlation	S.D. Sat.	S.D. Perf.
A	18	.4063#	11.12	0.10
B	13	.0666	12.98	0.19
C	19	.0684	17.56	0.12
D	13	.5417#	12.19	0.16
E	12	.0708	7.45	0.25
F	30	.4245**	11.63	0.17
Total	105	.2669**	12.64	0.17

** $p \leq .01$ # $p \leq .05$ ^a. Correlations are Spearman rhos.

Considering the whole sample, "Rate" was significantly correlated with both "Satisfaction" and "Performance." For the individual groups, this association was statistically significant only for the mechanically oriented ratings. For the Personnelmen, Yeomen, and Journalists of Group B, "Rate" was highly correlated with "Performance" alone, but not with "Satisfaction." Also, for the overall sample, "Satisfaction" and "Performance" were mutually correlated to "Age," as well as to "Years of Active Duty." These relationships did not hold for the individual groups, except for the mechanical personnel of Group F.

Throughout the findings, the education variable seemed to have little relationship to the other factors. "Education" was not significantly correlated with "Satisfaction" or "Performance," except in Group E.

Group A had a fairly high positive correlation (.38) of "Age" to "Satisfaction," but the level of significance was only .06. Further, Group A had significantly negative correlations of "Perceived Years Remaining of Active Duty" with "Rate," "Age," and "Years of Active Duty." These negative correlations are likely due to the expressed intentions of the stewards, most of whom are Philippine nationals, to complete a full 20-year career in the Navy. Other groups had a large number of single tour personnel with expectations of 1 year or less until leaving the service.

The most meaningful finding for the purposes of this paper was the fact that the correlation of satisfaction with performance was significantly different from zero in three of the six occupational groups.

Because of a lack of familiarity with the sample population, and with the specific occupational fields which made up the sample population, this author is not qualified to speculate on the reasons behind the findings. A notable observation, however, regarding the distributions of the performance marks, was that the standard deviation of the performance marks for each group was very small. As shown in Table II, the greatest standard deviation of these marks for any of the groups was 0.25 points. Considering the small group sizes, and the fact that performance marks were so tightly bunched in the vicinity of 3.80, it is surprising that significant correlations could be computed between performance and any other variable. The statistical inadequacies of the enlisted performance evaluation system have been a point of dismay to this author for several years.

C. MULTIPLE REGRESSION ANALYSIS

Multiple regression computations yielded multiple correlation coefficients (R), regular and normalized regression coefficients (B) and (Beta), and an F statistic for each entering variable.

1. Satisfaction

TABLE III.

SUMMARY OF MULTIPLE REGRESSION:
SATISFACTION AS DEPENDENT VARIABLE

Step	Variable Entered	B	Beta	R	F (entering)
1.	Age	0.455	.287	.30214	7.334
2.	Occupational Group ^{b.}	0.986	.144	.34018	1.989
3.	Active Duty Remaining	0.320	.123	.36595	1.492
4.	Performance Marks	8.323	.114	.37493	0.542
5.	Education (years)	-0.976	-.097	.38589	0.676
6.	Rate	-0.316	-.040	.38625	0.023
7.	Years on Active Duty	0.082	.046	.38642	0.010
	(Constant)	20.965			

b. Occupational Groups were assigned arbitrary identifier numbers as follows:

Group A=1	Group D=4
Group B=2	Group E=5
Group C=3	Group F=6

The author realizes that the assignment of nominal values to the six occupational groups is an arbitrary step and that it is likely to bother holders of the strict measurement-statistic position. The occupational variable is being used here, as are all the other predictor variables, strictly as a predictor. The crucial test of the sensibility of this usage comes when the prediction equations are used to predict the scores in the cross-validation sample.

The B values of Table III may be employed to yield a predictive equation for job satisfaction for the sample population:

$$\begin{aligned} \text{Satisfaction} = & .455(\text{Age}) + .986(\text{Group Number}) + .329(\text{Years of Active Duty} \\ & \text{Remaining}) + 8.323(\text{Performance Mark}) - .976(\text{Years of Education}) \\ & - .316(\text{Rate}) + .082(\text{Years on Active Duty}) + 20.965 \end{aligned}$$

Only the regression coefficient of entering variable "Age" was found to be statistically significant (at the .10 level) in the above equation; therefore, step one of the regression analysis provided the following reduced predictive equation:

$$\text{Satisfaction} = .478(\text{Age}) + 44.312$$

For this equation, Beta was .302, multiple R was .302, and the entering F was 7.334($p \leq .01$).

Cross validation with the 30 subjects not utilized for regression analysis was conducted. The correlation between the predicted and observed satisfaction scores, using the reduced equation, was .368($p \leq .025$) as compared with a multiple R of .302($p \leq .01$) for step one of the regression analysis. The correlation coefficients are similar and, in either case, approximately 10-13% of the variance in scores was accounted for by age alone. It is interesting to note that "Performance" did not enter the regression equation until step four, after "Occupational Group," and "Expected Active Duty Remaining." "Performance" by itself, in this instance, accounted for less than 1% of the satisfaction score variance.

2. Performance

TABLE IV.

SUMMARY OF MULTIPLE REGRESSION: PERFORMANCE AS DEPENDENT VARIABLE

Step	Variable Entered	B	Beta	R	F (entering)
1.	Rate	0.046	.423	.46149	19.754
2.	Occupational Group*	-0.019	-.207	.52616	6.359
3.	Satisfaction	0.001	.094	.54349	0.928
4.	Education	0.014	.106	.54221	0.775
5.	Active Duty Remaining	0.003	.086	.54856	0.684
6.	Age	0.001	.049	.54937	0.087
	(Constant)	3.33			

* Occupational Groups as noted in Table III.

Note: Years of Active Duty did not enter into the regression because of an insufficient F (approximately zero).

In similar fashion to the methods explained above for Satisfaction, a predictive equation was constructed for Job Performance as follows:

$$\begin{aligned} \text{Performance} = & .046(\text{Rate}) - .019(\text{Group Number}) + .001(\text{Satisfaction Score}) \\ & + .014(\text{Years of Education}) + .003(\text{Years of Active Duty Remaining}) \\ & + .001(\text{Age}) + 3.33 \end{aligned}$$

As in the case of Satisfaction, not all of the available variables were significant for inclusion in this predictive formula. Inspection of the entering F ratios revealed that only the "Rate" and "Group" regression coefficients were significant at the .10 level. Therefore, an almost equally effective, but shortened equation could be constructed from the statistics after step two of the regression. This equation was:

$$\text{Performance} = .051(\text{Rate}) - .023(\text{Group Number}) + 3.63$$

For this equation, Beta was .473 for "Rate" and $-.253$ for "Group," and the entering F statistics were $19.754(p \leq .001)$ for "Rate," and $6.359(p \leq .005)$ for "Group."

Again, cross validation was performed on the 30 subjects withheld from the regression. Only the reduced formula was applied as the further reduction in unexplained variance in Performance marks offered by the additional variables in the longer equation would have been negligible. In this cross validation group, the "R" between the predicted and observed performance marks was $.314(p \leq .10)$, as compared to a multiple R of $.526(p = .001)$ in the original validation group. The correlations differ to some degree, but indicate an accounting of only 10-25% of the variance in the performance marks. It was noted that "Satisfaction" was not brought into the equation until after the two significant variables had been entered. Satisfaction alone accounted for only 1% of the performance mark variance.

The cross-validation subsample was used again to construct a correlation between observed performance marks, and predicted performance marks using only the "Rate" variable and its associated weight and constant. ($\text{Perf} = 0.050(\text{Rate}) + 3.54$) The resultant correlation for the cross-validation subsample ($n=30$) was $0.455(p \leq .01)$, compared with a multiple R of $0.461(p \leq .01)$ for the first step in the regression. It appears then that the inclusion of "Group" into the predictor equation added "noise" to the model and detracted from the cross-validation relationship.

VIII. CONCLUSIONS

The overall results of this study lend some support to the initially stated hypothesis of a positive relationship between job satisfaction and performance. Investigation of specific occupational groups apart from the others showed that with some groups there was indeed a statistically significant correlation between job satisfaction and job performance; while with others, the job satisfaction and job performance relationship showed a random pattern. This effect suggests the presence of other variables, the determination of which is somewhat beyond the scope of this paper. In some cases, the correlations between and among variables indicated that job satisfaction and job performance may be a mutual function of a third variable such as "Age" or "Years of Active Duty."

There was an important unknown which could not be completely controlled or accounted for in this study. There was a possible contamination of the experiment due to the number of respondents who were not naive concerning the subject of the study. The particular group of enlisted members available had been used repeatedly for various studies, some of which were similar in design to this one. This fact may have also been influential upon the low percentage of questionnaires which were completed and returned (57%).

While the hypothesis that a positive relationship exists between job satisfaction and job performance has received some support here, further studies among military populations are clearly warranted. Replication on

a larger sample of subjects is highly recommended. If strong agreement with the basic hypothesis (positive relationship between satisfaction and performance) is found in further investigations, the implications upon naval personnel management would be manifold.

The results of the multiple regression analysis of the variables considered suggest a strong influence of Age upon perceived job satisfaction, with performance contributing very little to the prediction of job satisfaction. When looking at the determinants of performance, it was found that the subjects' rate and occupational group contributed more to the prediction of performance marks than did job satisfaction. It must be kept in mind that these relationships may pertain only to this particular sample, and may not be generalizable to other groups. It was encouraging to find, however, that some statistical support was available for the author's hypothesis. It was also eye opening to this author to discuss the correlation of "Age" with job satisfaction, and the strong relationships performance marks had with "Rate."

Although this study did not attempt to determine the cause-effect relationships between job satisfaction and job performance, the statistical findings suggest that in some cases both variables may be effects of still other variables. Intensive additional studies would be required to investigate this possibility.

APPENDIX A

JOB QUESTIONNAIRE¹

Some jobs are more interesting and satisfying than others. We want to know how people feel about different jobs. This blank contains eighteen statements about jobs. You are to cross out the phrase below each statement which best describes how you feel about your present job. There are no right or wrong answers. We should like your honest opinion on each one of the statements. Work out the sample item numbered (0).

- (0) There are some conditions concerning my job that could be improved.
STRONGLYAGREE AGREE UNDECIDED DISAGREE STRONGLY DISAGREE
- (1) My job is like a hobby to me.
STRONGLY AGREE AGREE UNDECIDED DISAGREE STRONGLY DISAGREE
- (2) My job is usually interesting enough to keep me from getting bored.
STRONGLYAGREE AGREE UNDECIDED DISAGREE STRONGLY DISAGREE
- (3) It seems that my friends are more interested in their jobs.
STRONGLYAGREE AGREE UNDECIDED DISAGREE STRONGLY DISAGREE
- (4) I consider my job rather unpleasant.
STRONGLYAGREE AGREE UNDECIDED DISAGREE STRONGLY DISAGREE
- (5) I enjoy my work more than my leisure time.
STRONGLYAGREE AGREE UNDECIDED DISAGREE STRONGLY DISAGREE
- (6) I am often bored with my job.
STRONGLYAGREE AGREE UNDECIDED DISAGREE STRONGLY DISAGREE
- (7) I feel fairly well satisfied with my present job.
STRONGLYAGREE AGREE UNDECIDED DISAGREE STRONGLY DISAGREE
- (8) Most of the time I have to force myself to go to work.
STRONGLYAGREE AGREE UNDECIDED DISAGREE STRONGLY DISAGREE
- (9) I am satisfied with my job for the time being.
STRONGLYAGREE AGREE UNDECIDED DISAGREE STRONGLY DISAGREE
- (10) I feel that my job is no more interesting than others I could get.
STRONGLYAGREE AGREE UNDECIDED DISAGREE STRONGLY DISAGREE
- (11) I definitely dislike my work.
STRONGLYAGREE AGREE UNDECIDED DISAGREE STRONGLY DISAGREE
- (12) I feel that I am happier in my work than most other people.
STRONGLYAGREE AGREE UNDECIDED DISAGREE STRONGLY DISAGREE

¹This form is discussed in detail by its authors in Brayfield and Rothe (1951).

- (13) Most days I am enthusiastic about my work.
STRONGLYAGREE AGREE UNDECIDED DISAGREE STRONGLYDISAGREE
- (14) Each day of work seems like it will never end.
STRONGLYAGREE AGREE UNDECIDED DISAGREE STRONGLYDISAGREE
- (15) I like my job better than the average worker does.
STRONGLYAGREE AGREE UNDECIDED DISAGREE STRONGLYDISAGREE
- (16) My job is pretty uninteresting.
STRONGLYAGREE AGREE UNDECIDED DISAGREE STRONGLYDISAGREE
- (17) I find real enjoyment in my work.
STRONGLYAGREE AGREE UNDECIDED DISAGREE STRONGLYDISAGREE
- (18) I am disappointed that I ever took this job.
STRONGLYAGREE AGREE UNDECIDED DISAGREE STRONGLYDISAGREE

Thank you for your help. Please place this entire form in the envelope provided, seal, and return it to your division officer or personnel office for forwarding.

APPENDIX B

REPORT BUPERS 1616-2

REPORT OF ENLISTED PERFORMANCE EVALUATION
NAVPERS 1616/5 (10-71) (Formerly NAVPERS 792)
5/N 0106-078-3175

PERIOD OF REPORT

To

NAME (Last, First, Middle)

SSN

DATE ADD.

PRESENT SHIP OR STATION

INSTRUCTIONS

- For each trait, evaluate the man on his actual observed performance. If performance was not observed, check the "Not Observed" box.
- Compare him with others of the same rate.
- If the major portion of his work has been outside his rate or pay grade
- during this reporting period, evaluate him on what he did. Describe what he did in the "Comments" section.
- Pick the phrase which best fits the man in each trait and check left or right box under it. (Left box is more favorable.)

1. PROFESSIONAL PERFORMANCE: His skill and efficiency in performing assigned duties (except SUPERVISORY)

NOT OBSERVED	Extremely effective and reliable. Works well on his own.	Highly effective and reliable. Needs only limited supervision.	Effective and reliable. Needs occasional supervision.	Adequate, but needs routine supervision.	Inadequate. Needs constant supervision.
<input type="checkbox"/>	* <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	* <input type="checkbox"/>

2. MILITARY BEHAVIOR: How well he accepts authority and conforms to standards of military behavior.

NOT OBSERVED	Always acts in the highest traditions of the Navy.	Willingly follows commands and regulations.	Conforms to Navy standards.	Usually obeys commands and regulations. Occasionally lax.	Dislikes and flouts authority. Unseamanlike.
<input type="checkbox"/>	* <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	* <input type="checkbox"/>

3. LEADERSHIP AND SUPERVISORY ABILITY: His ability to plan and assign work to others and effectively direct their activities.

NOT OBSERVED	Gets the most out of his men.	Handles men very effectively.	Gets good results from his men.	Usually gets adequate results.	Poor supervisor.
<input type="checkbox"/>	* <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	* <input type="checkbox"/>

4. MILITARY APPEARANCE: His military appearance and neatness in person and dress.

NOT OBSERVED	Impressive. Wears Naval uniform with great pride.	Smart. Neat and correct in appearance.	Conforms to Navy standards of appearance.	Passable. Sometimes careless in appearance.	No credit to the Naval Service.
<input type="checkbox"/>	* <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	* <input type="checkbox"/>

5. ADAPTABILITY: How well he gets along and works with others.

NOT OBSERVED	Gets along exceptionally well. Promotes good morale.	Gets along very well with others. Contributes to good morale.	A good shipmate. Helps morale.	Gets along adequately with others.	A misfit.
<input type="checkbox"/>	* <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	* <input type="checkbox"/>

6. DESCRIPTION OF ASSIGNED TASKS

7. EVALUATION OF PERFORMANCE (E-5 and above include comment on ability in self expression and command, orally and in writing, of the English language)

8. THESE ITEMS MUST BE JUSTIFIED BY COMMENTS IN ADDITION TO THOSE IN ITEM 7 ABOVE

9. REASON FOR REPORTING

☐ SEMIANNUAL ☐ TRANSFER ☐ OTHER _____

10. DATE

11. SIGNATURE OF REPORTING SUPERIOR

REPORT OF ENLISTED PERFORMANCE EVALUATION (Back)

NAVPERS 1016/5 (10-71) (Formerly NAVPERS 792) S/N 0106-078-3175

12. SERVICE SCHOOL(S) ATTENDED DURING PERIOD OF THIS REPORT

INCLUSIVE DATES	SCHOOL	GRADUATED (YES-NO)	CLASS STANDING

13. SPECIAL QUALIFICATIONS NOT INDICATED BY RATING OR PRIMARY NEC ATTAINED DURING PERIOD OF THIS REPORT

14. OFF-DUTY EDUCATIONAL ACHIEVEMENTS (USAFI, college courses, correspondence courses, etc.) COMPLETED DURING PERIOD OF THIS REPORT.

APPENDIX C

CHIEF PETTY OFFICER PERFORMANCE MARK CONVERSION

Chief Petty Officers , pay grades E-7 , E-8 , and E-9 , are currently graded on a different form from that of the other enlisted grades , in an effort to develop a greater distribution of marks of the people in the upper pay grades , as their marks have traditionally been bunched at or near 4.0 .

In this study , only the dimensions most nearly approximating those found on the regular Enlisted Evaluation Form (Appendix B) were used . These marks , as percentile scores , were plotted against the most recent regular marks for the individual prior to being promoted to Chief Petty Officer . For instance , an average "CPO" mark in the top 5% would be plotted as the 95 percentile , against that person's most recent "non-CPO" average .

Once all the Chief Petty Officers' marks were plotted , a regression line was constructed on the plot . The performance marks used in the study were those which were defined by the intersection of the percentile score and the regression line . In most cases the Chief Petty Officers' computed average scores still fell at or near 4.0 .

The following page depicts an example of the Chief Petty Officer evaluation form . The dimensions which were used are indicated on the form by asterisks .

MASTER, SENIOR, CHIEF PETTY OFFICER EVALUATION REPORT
NAVPERS 1616/8W (4-71) S/N D106-078-3185

WORKSHEET

(Hatched areas need not be filled in on Worksheet)

1. NAME (Last, first, middle name or initial)		2. SERVICE NUMBER	3. GRADE	INTRACOMMAND ROTATING (Initiating Official) (Reviewing Official) (Reviewing Official) (Reporting Officer)
4. RATE ABBREVIATION	5. DATE OF RATE	6. GRADE/CLASS	7. AVERAGE NUMBER MEMBERS SUPERVISED BY RATEE	
8. DUTY OR STATION		9. DUTY 1, 0, 100	10. DATE REVISED THIS YEAR	
11. OCCASION FOR REPORT <input type="checkbox"/> ANNUAL <input type="checkbox"/> TRANSFER <input type="checkbox"/> OTHER		12. PERIOD OF REPORT FROM TO		

EVALUATION SECTION		TYPICAL OUTSTANDING CHIEF OF RATES RATE		CLARIFICATION OF TERMS	
Compare ratee with all others of his rate known to you. Mark only the smallest top or bottom percentage which applies.		TOP	50%	50%	BOTTOM
13. PERFORMANCE OF DUTY *					
14. PERSONAL APPEARANCE *					
15. COOPERATIVENESS					
16. RELIABILITY					
17. INITIATIVE					
18. CONDUCT *					
19. RESOURCEFULNESS					
20. POTENTIAL *					
21. LEADERSHIP	Directing *				
22. VERBAL EXPRESSION	Counseling				
23. Speaking					
24. Writing					
25. OVERALL EVALUATION					
26. NUMBER OF MEMBERS OF RATEE'S GRADE MARKED IN EACH PERCENTAGE OF BLOCK 25 ONLY					

Any mark in top/bottom 10, 5, or 1% requires individual justification in block 46.

19. Resourcefulness - Innovative or creative ability which has resulted in improving procedures or mechanisms.

20. Potential - Capacity for higher responsibility or rate/rank.

21. Directing - Influencing others to accomplish a job.

22. Counseling - Assisting and encouraging subordinates in self development and toward a favorable disposition to a Navy career.

23. Speaking, Writing - Gets meaning across clearly and concisely.

24. Overall Evaluation - General value to the Service.

* Denotes dimensions used for "CPO" comparable marks

27. TREND (If declining or inconsistent, explain in block 45)
☐ IMPROVING ☐ STEADY ☐ INCONSISTENT ☐ DECLINING ☐ FIRST

28. YOUR ATTITUDE TOWARD HAVING RATEE IN YOUR COMMAND
☐ PARTICULARLY DESIRE TO HAVE ☐ PLEASED TO HAVE ☐ WILLING TO HAVE ☐ PREFER NOT TO HAVE

29. BEHAVIORAL INFRACTIONS (If other than NONE, explain in block 45)
☐ MAJOR OR FREQUENT ☐ MINOR OR ISOLATED ☐ NONE

30. SPECIAL CODES
 31. 32.

33. DURING THIS PERIOD HAS RATEE BEEN INDIVIDUALLY (Explain in block 45)
☐ COMMENDED ☐ DISCIPLINED (MILITARY) ☐ DISCIPLINED (CIVIL)

EXCERPTS FROM SECTION 3410150, BUPERS MANUAL

"It is desired that the member's division officer or appropriate chief petty officer make the initial evaluation. The evaluation shall be based on the specific period of time involved and reviewed for approval through the chain of command." (para. (3))

"Where memorandum entries of a meritorious or derogatory nature have been made in the service record, e.g., on page 6, 9, or 13, the evaluation should be corrected by an amount considered appropriate in those traits which pertain to the entry." (para. (12))

REPORTING SENIOR'S SPECIAL RECOMMENDATION FOR RATEE'S FUTURE DUTY ASSIGNMENTS		35. JOINT/COMBINED STAFF, ATTACHE & NAVAL HEADQUARTERS	
HIGHLY RECOMMENDED <input type="checkbox"/>	RECOMMENDED <input type="checkbox"/>	36. RECRUITER	37. INSTRUCTOR
NOT RECOMMENDED <input type="checkbox"/>	38. CAREER COUNSELOR	39. INDEPENDENT DUTY	
40. RECRUIT COMPANY COMMANDER	41. OTHER (Optional):		

MASTER, SENIOR, CHIEF PETTY OFFICER EVALUATION REPORT (Back)

COMMENTS SECTION (Must not be left blank)

44. BACKGROUND DATA

a. RATEE'S PRIMARY AND SIGNIFICANT COLLATERAL DUTIES:

b. SIGNIFICANT DEPLOYMENTS OF COMMAND

c. LIST RATEE'S SPECIAL ASSIGNMENTS, SERVICE SCHOOLS ATTENDED AND OFF-DUTY EDUCATIONAL ACHIEVEMENTS:

EXCERPTS FROM BUPERS MANUAL (continued)

"Evaluations must be based objectively on the member's demonstrated performance and his abilities as compared to established Navy standards and the performance of his contemporaries. . . . it is necessary that a member's shortcomings, such as alcoholism or other unreliability producing deficiencies be reported. Such deficiencies can be of vital importance in the selection of members for duty assignment, advancement, etc." (para. (4))

"The completed form shall be signed by the commanding officer, except that the commanding officer may authorize the executive officer or department head to sign provided such officers are of the grade of LCDR or above, or equivalent grade officer of another service." (para. (9) (b))

45. EVALUATION COMMENTS (Use to further describe ratee's performance and qualifications. If ratee is in rating or billet which provides services to shipmates and/or dependents, comment MUST be made on his ability to provide courteous, responsive and efficient service and must be reflected in Items 11, 15, and 22. Use also to amplify certain marks in blocks 27, 29, 33, and 34 thru 41.)

46 JUSTIFICATION COMMENTS (Use only to document any TOP/BOTTOM 10/5/1% marks in the Evaluation Section, blocks 13 thru 25.)

NAVPERS 1616/8W (4-71)

90°

APPENDIX D

LISTING OF DESCRIPTIVE STATISTICS

Entire sample (n=105)

Distribution of pay grades:

Rate	n	Percent of total
E-2	2	1.9
E-3	13	12.4
E-4	22	21.0
E-5	26	24.8
E-6	26	24.8
E-7	11	10.5
E-8	2	1.9
E-9	3	2.9
	<u>105</u>	<u>100.0</u>

Bi-modal classes E-5, E-6

Distribution of Age:

Years	n	Percent of total
25 and below	40	38.1
26--30	25	23.8
31-35	13	12.4
36 and over	27	25.7
	<u>105</u>	<u>100.0</u>

Mean 29.44

S.D. 7.50

Skewness 0.632

Mode 26

Min 19

Median 27.12

Max 52

Distribution of Years of Active Duty:

Years	n	Percent of total
5 or less	38	36.2
6--10	30	28.6
11-15	10	9.5
16 and over	27	25.7
	<u>105</u>	<u>100.0</u>

Mean 9.62

S.D. 6.59

Skewness 0.641

Mode 8.00

Min 0.0

Median 7.84

Max 28.0

DESCRIPTIVE STATISTICS

Entire sample (n=105)

Distribution of Education:

Years	n	Percent of total
9	1	1.0
10	2	1.9
11	3	2.9
12	61	58.1
13	16	15.2
14	18	17.1
15	1	1.0
16	<u>3</u>	<u>2.9</u>
	105	100.0
Mean 12.54	S.D. 1.14	Skewness 0.645
Mode 12.00	Min 9.0	
Median 12.26	Max 16.0	

Distribution of Perceived Years Remaining on Active Duty:

Years	n	Percent of total
0--3	57	54.3
4--10	22	20.9
11--over	<u>26</u>	<u>24.8</u>
	105	100.0
Mean 5.62	S.D. 5.60	Skewness 1.196
Mode 1.00	Min 0.0	
Median 3.18	Max 25.0	

Distribution of Job Satisfaction Scores:

Score	n	Percent of total
45 and below	17	16.2
46--59	28	26.7
60--73	51	48.5
74 and over	<u>9</u>	<u>8.6</u>
	105	100.0
Mean 59.41	S.D. 12.6	Skewness -0.764
Mode 65.00	Min 26	
Median 61.67	Max 82	

Distribution of Performance Marks:

Mark	n	Percent of total
3.66 and below	24	22.9
3.67 - 3.84	28	26.6
3.85 - 3.92	27	25.7
3.93 - 4.00	<u>26</u>	<u>24.8</u>
	105	100.0
Mean 3.80	S.D. 0.17	Skewness -1.067
Mode 4.00	Min 3.15	
Median 3.85	Max 4.00	

DESCRIPTIVE STATISTICS

Group A (n=18)

Pay Grade:

Rate	n
E-3	3
E-4	7
E-5	3
E-6	2
E-7	2
E-8	0
E-9	<u>1</u>
	18

Age:

Mean 34.3	S.D. 6.88	Skewness 0.85
Mode 26.0	Min 26.0	
Median 34.0	Max 52.0	

Years on Active Duty:

Mean 11.8	S.D. 6.0	Skewness 1.18
Mode 9.0	Min 4.0	
Median 9.0	Max 28.0	

Education:

Mean 12.8	S.D. 0.29	Skewness 1.26
Mode 12.0	Min 12.0	
Median 0.0	Max 16.0	

Perceived Years Remaining on Active Duty:

Mean 8.39	S.D. 4.58	Skewness -0.33
Mode 13.00	Min 1.0	
Median 10.0	Max 15.0	

Satisfaction Score:

Mean 58.39	S.D. 11.16	Skewness -0.30
Mode 57.00	Min 37.00	
Median 58.50	Max 79.00	

Performance Marks:

Mean 3.90	S.D. 0.10	Skewness -1.07
Mode 4.00	Min 3.68	
Median 3.93	Max 4.00	

DESCRIPTIVE STATISTICS

Group B (n=13)

Pay Grade:

Rate	n
E-3	3
E-4	3
E-5	1
E-6	2
E-7	3
E-8	0
E-9	<u>1</u>
	13

Age:

Mean	29.77	S.D.	9.07	Skewness	0.23
Mode	22.00	Min	20.00		
Median	28.13	Max	42.00		

Years on Active Duty:

Mean	10.85	S.D.	9.09	Skewness	0.29
Mode	2.00	Min	2.00		
Median	7.50	Max	25.00		

Education:

Mean	12.77	S.D.	0.83	Skewness	0.45
Mode	12.00	Min	12.00		
Median	12.63	Max	14.00		

Perceived Years Remaining on Active Duty:

Mean	2.46	S.D.	3.97	Skewness	2.65
Mode	1.00	Min	0.0		
Median	1.20	Max	15.00		

Satisfaction Scores:

Mean	58.92	S.D.	12.98	Skewness	-0.81
Mode	73.00	Min	34.00		
Median	61.25	Max	74.00		

Performance Marks:

Mean	3.80	S.D.	0.19	Skewness	-0.68
Mode	4.00	Min	3.45		
Median	3.87	Max	4.00		

DESCRIPTIVE STATISTICS

Group C (n=19)

Pay Grade:

Rate	n
E-3	2
E-4	6
E-5	7
E-6	2
E-7	<u>2</u>
	19

Age:

Mean 26.1	S.D. 5.72	Skewness 1.22
Mode 23.0	Min 20.00	
Median 24.0	Max 40.00	

Years on Active Duty:

Mean 6.42	S.D. 4.98	Skewness 1.48
Mode 3.00	Min 2.0	
Median 4.25	Max 19.0	

Education:

Mean 12.95	S.D. 1.13	Skewness 1.05
Mode 12.00	Min 12.00	
Median 12.63	Max 16.00	

Perceived Years Remaining on Active Duty:

Mean 4.95	S.D. 2.71	Skewness 1.76
Mode 1.00	Min 0.0	
Median 1.35	Max 25.0	

Satisfaction Score:

Mean 56.84	S.D. 17.56	Skewness -0.39
Mode 72.00	Min 26.00	
Median 59.25	Max 82.0	

Performance Marks:

Mean 3.77	S.D. 0.19	Skewness 0.50
Mode 3.65	Min 3.60	
Median 3.74	Max 4.00	

DESCRIPTIVE STATISTICS

Group D (n=13)

Pay Grade:

Rate	n
E-4	2
E-5	5
E-6	5
E-7	<u>1</u>
	13

Age:

Mean 29.23	S.D. 8.18	Skewness 1.32
Mode 25.00	Min 21.0	
Median 25.33	Max 46.0	

Years on Active Duty:

Mean 9.08	S.D. 5.91	Skewness 0.84
Mode 5.00	Min 3.00	
Median 5.83	Max 20.00	

Education:

Mean 12.62	S.D. 1.26	Skewness 1.547
Mode 12.00	Min 11.00	
Median 12.29	Max 16.00	

Perceived Years Remaining on Active Duty:

Mean 3.62	S.D. 4.41	Skewness 1.40
Mode 1.00	Min 0.0	
Median 1.67	Max 14.00	

Satisfaction Score:

Mean 60.85	S.D. 12.19	Skewness -0.81
Mode 59.00	Min 33.00	
Median 62.25	Max 79.00	

Performance Marks:

Mean 3.84	S.D. 0.16	Skewness -0.89
Mode 4.00	Min 3.55	
Median 3.88	Max 4.00	

DESCRIPTIVE STATISTICS

Group E (n=12)

Pay Grade:

Rate	n
E-4	2
E-5	3
E-6	2
E-7	2
E-8	2
E-9	<u>1</u>
	12

Age:

Mean 32.43	S.D. 6.67	Skewness 0.04
Mode 34.00	Min 22.00	
Median 33.00	Max 44.00	

Years on Active Duty:

Mean 13.42	S.D. 6.57	Skewness -0.23
Mode 15.00	Min 4.0	
Median 14.50	Max 22.00	

Education:

Mean 12.50	S.D. 1.17	Skewness -0.36
Mode 12.00	Min 10.00	
Median 12.25	Max 14.00	

Perceived Years Remaining on Active Duty:

Mean 5.33	S.D. 4.40	Skewness 0.63
Mode 6.00	Min 0.0	
Median 5.00	Max 14.00	

Satisfaction Score:

Mean 65.50	S.D. 7.45	Skewness -0.57
Mode 62.00	Min 51.00	
Median 67.50	Max 76.00	

Performance Marks:

Mean 3.77	S.D. 0.25	Skewness -1.46
Mode 3.88	Min 3.15	
Median 3.86	Max 4.00	

DESCRIPTIVE STATISTICS

Group F (n=30)

Pay Grade:

Rate	n
E-2	2
E-3	5
E-4	2
E-5	7
E-6	13
E-7	<u>1</u>
	30

Age:

Mean 27.37	S.D. 6.73	Skewness 0.55
Mode 26.00	Min 19.00	
Median 26.17	Max 42.00	

Years on Active Duty:

Mean 8.50	S.D. 6.06	Skewness 0.49
Mode 7.00	Min 0.0	
Median 7.50	Max 20.00	

Education:

Mean 12.00	S.D. 0.98	Skewness -0.44
Mode 12.00	Min 9.00	
Median 12.00	Max 14.00	

Perceived Years Remaining on Active Duty:

Mean 6.73	S.D. 5.36	Skewness 0.95
Mode 3.00	Min 1.00	
Median 3.90	Max 21.00	

Satisfaction Score:

Mean 58.80	S.D. 11.63	Skewness -0.84
Mode 64.00	Min 28.00	
Median 60.50	Max 78.00	

Performance Marks:

Mean 3.76	S.D. 0.17	Skewness -0.32
Mode 3.92	Min 3.43	
Median 3.76	Max 4.00	

APPENDIX E

SPEARMAN CORRELATION COEFFICIENTS

All Groups (n=105)

	AGE	YRACDU	EDUC	YRTOGO	SAT	PERF
RATE	.7086*	.8005*	-.0179	-.1022	.3172*	.4718*
AGE		.9299*	.0029	.0703	.3422*	.5151*
YRACDU			-.0277	.0372	.3080*	.4901*
EDUC				-.1573	-.0653	.1139
YRTOGO	*p≤.001				.2395**	.1339
SAT	**p≤.01					.2669**

Legend:

RATE--Pay Grade

AGE--Years

YRACDU--Years of Active Duty

EDUC--Years of Formal Schooling

YRTOGO--Perceived Years of Active Duty Remaining

SAT--Satisfaction Scores

PERF--Performance Marks

SPEARMAN CORRELATION COEFFICIENTS

Group A (n=18)

	AGE	YRACDU	EDUC	YRTOGO	SAT	PERF
RATE	.5900**	.6788*	-.1281	-.6091**	.3328	.4842
AGE		.8551*	-.1321	-.7908*	.3774	.2028
YRACDU			-.1902	-.9552*	.2018	.5055 [#]
EDUC				.2029	-.3165	-.1311
YRTOGO	* $p \leq .001$				-.1459	-.4587 [#]
	** $p \leq .01$					
SAT	# $p \leq .05$.4063 [#]

Group B (n=13)

	AGE	YRACDU	EDUC	YRTOGO	SAT	PERF
RATE	.9192*	.9465*	.1684	.0565	.0702	.8805*
AGE		.9018	.2365	-.0491	-.0378	.8460*
YRACDU			.1026	-.1405	.0611	.7260**
EDUC				-.1714	-.1127	.2109
YRTOGO	* $p \leq .001$				-.1015	.0630
	** $p \leq .01$					
SAT						.0666

SPEARMAN CORRELATION COEFFICIENTS

Group C (n=19)

	AGE	YRACDU	EDUC	YRTOGO	SAT	PERF
RATE	.4395	.6682*	.2344	.0213	.1532	.2400
AGE		.7430*	.1545	.6172**	.5447**	.2346
YRACDU			.1966	.4781	.3931	.3980
EDUC				-.0061	-.0717	-.0071
YRTOGO	*p≤.001				.6592*	.2745
	**p≤.01					
SAT						.0684

Group D (n=13)

	AGE	YRACDU	EDUC	YRTOGO	SAT	PERF
RATE	.7619	.7362**	-.1883	.0181	.1650	.2798
AGE		.9188*	-.1035	-.1554	.1852	.1840
YRACDU			-.3320	.0807	.2416	.1196
EDUC				-.4292	-.2017	.2762
YRTOGO	*p≤.001				.4668	.1607
	**p≤.01					
SAT	# p≤.05					.5417 [#]

SPEARMAN CORRELATION COEFFICIENTS

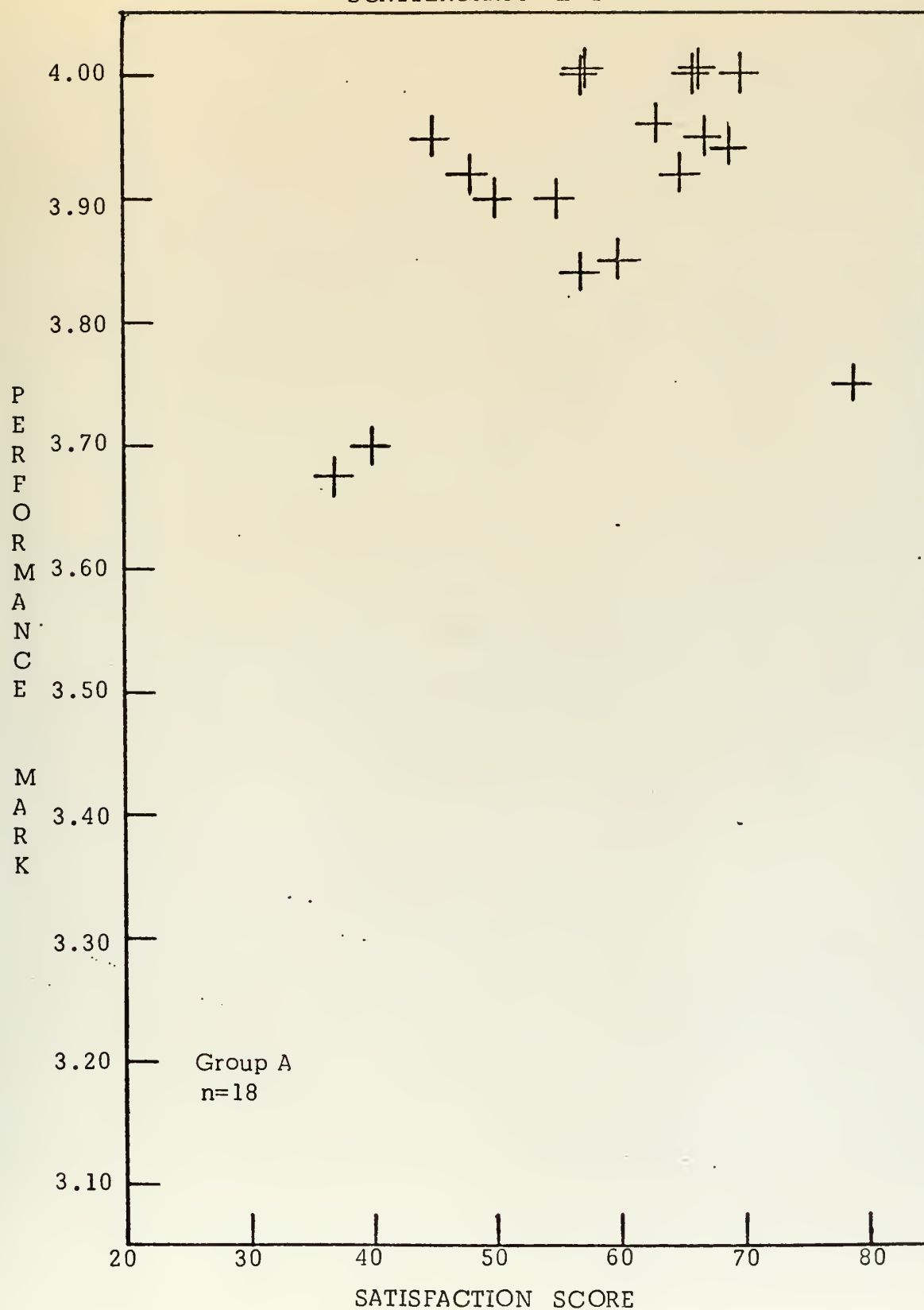
Group E (n=12)

	AGE	YRACDU	EDUC	YRTOGO	SET	PERF
RATE	.8819*	.8788*	.2313	-.3405	.3541	.3488
AGE		.9734*	.2815	-.2424	.4478	.2847
YRACDU			.2388	-.3037	.2945	.2660
EDUC				-.4515	.4408	.5040 [#]
YRTOGO	*p≤.001				.1117	-.0749
SAT	# p≤.05					.0708

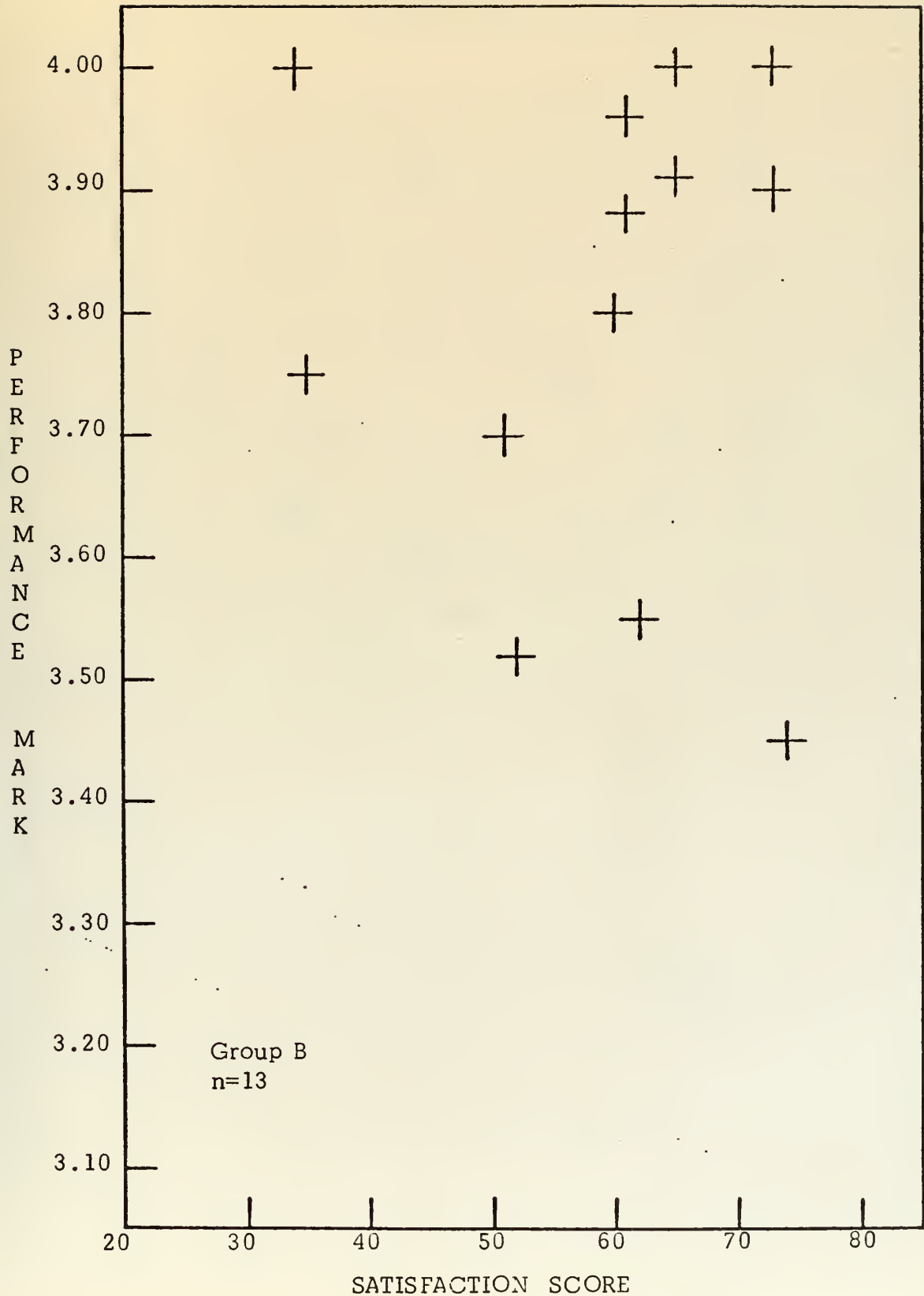
Group F (n=30)

	AGE	YRACDU	EDUC	YRTOGO	SAT	PERF
RATE	.8032*	.8676*	-.1669	.1725	.4518**	.6183*
AGE		.9298*	-.1640	.0166	.5341*	.6124*
YRACDU			-.1601	-.0883	.4340**	.4977**
EDUC				.2032	-.0732	-.1646
YRTOGO	*p≤001				.3356	.2647
SAT	**p≤.01					.4245**

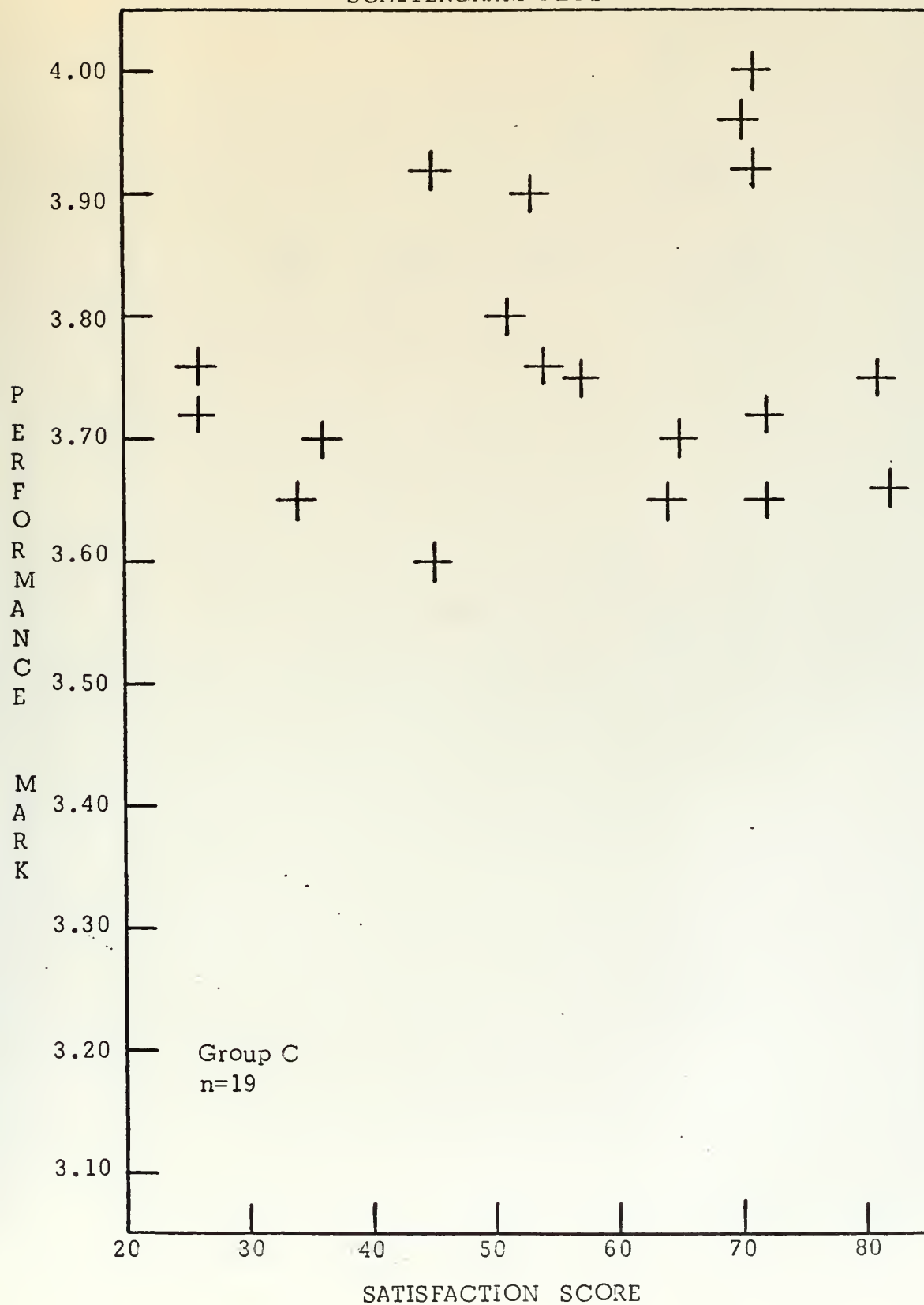
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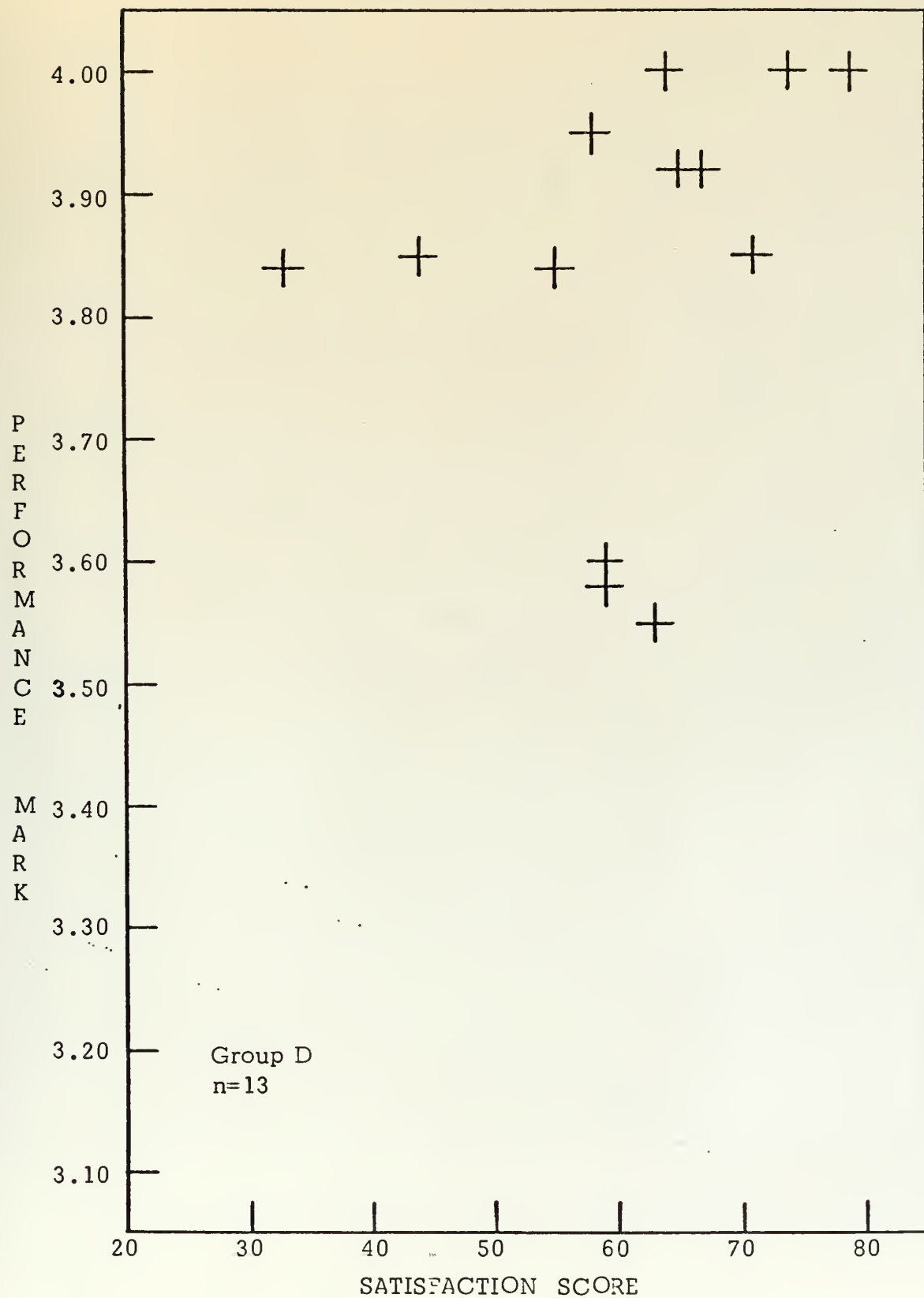
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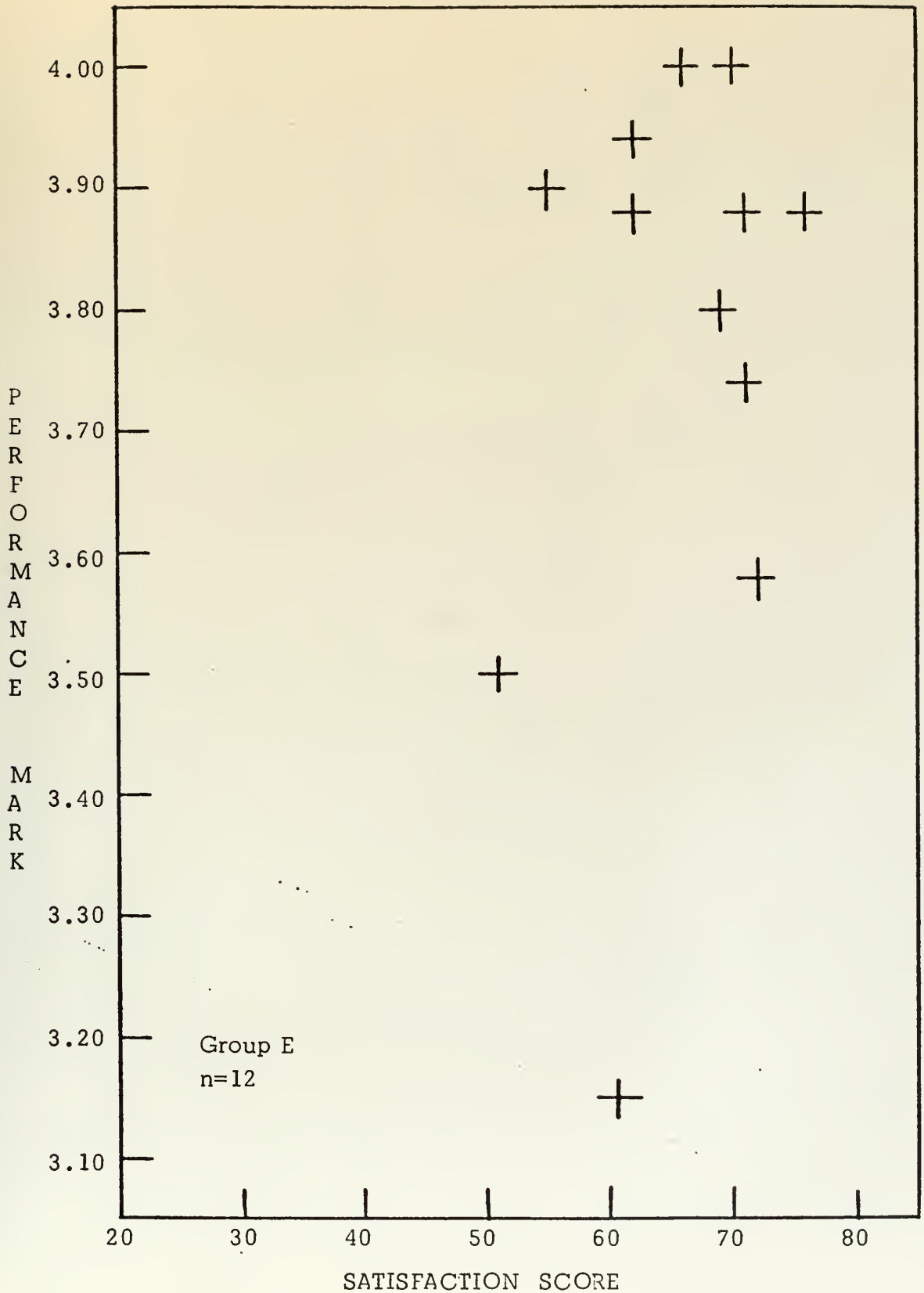
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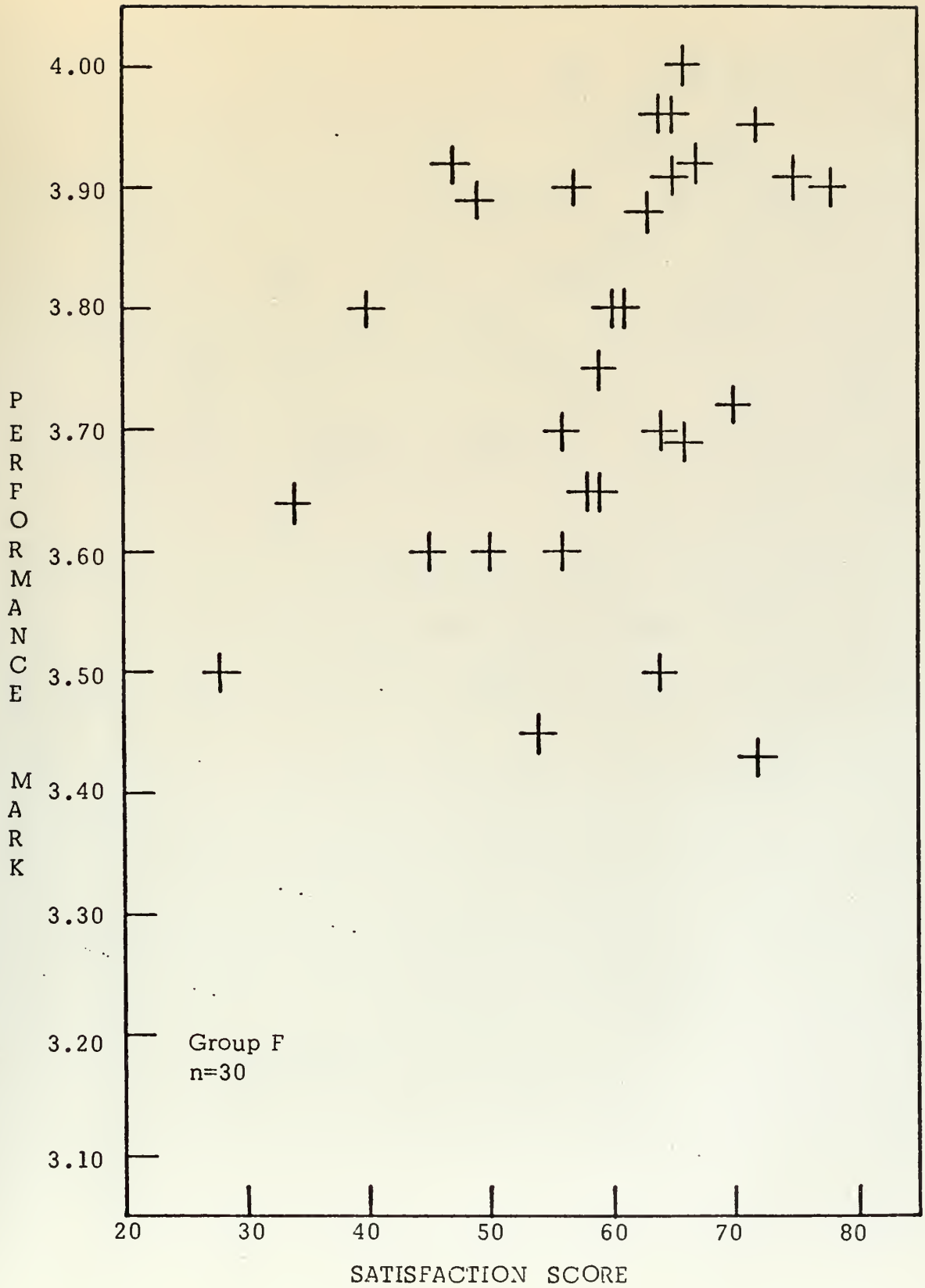
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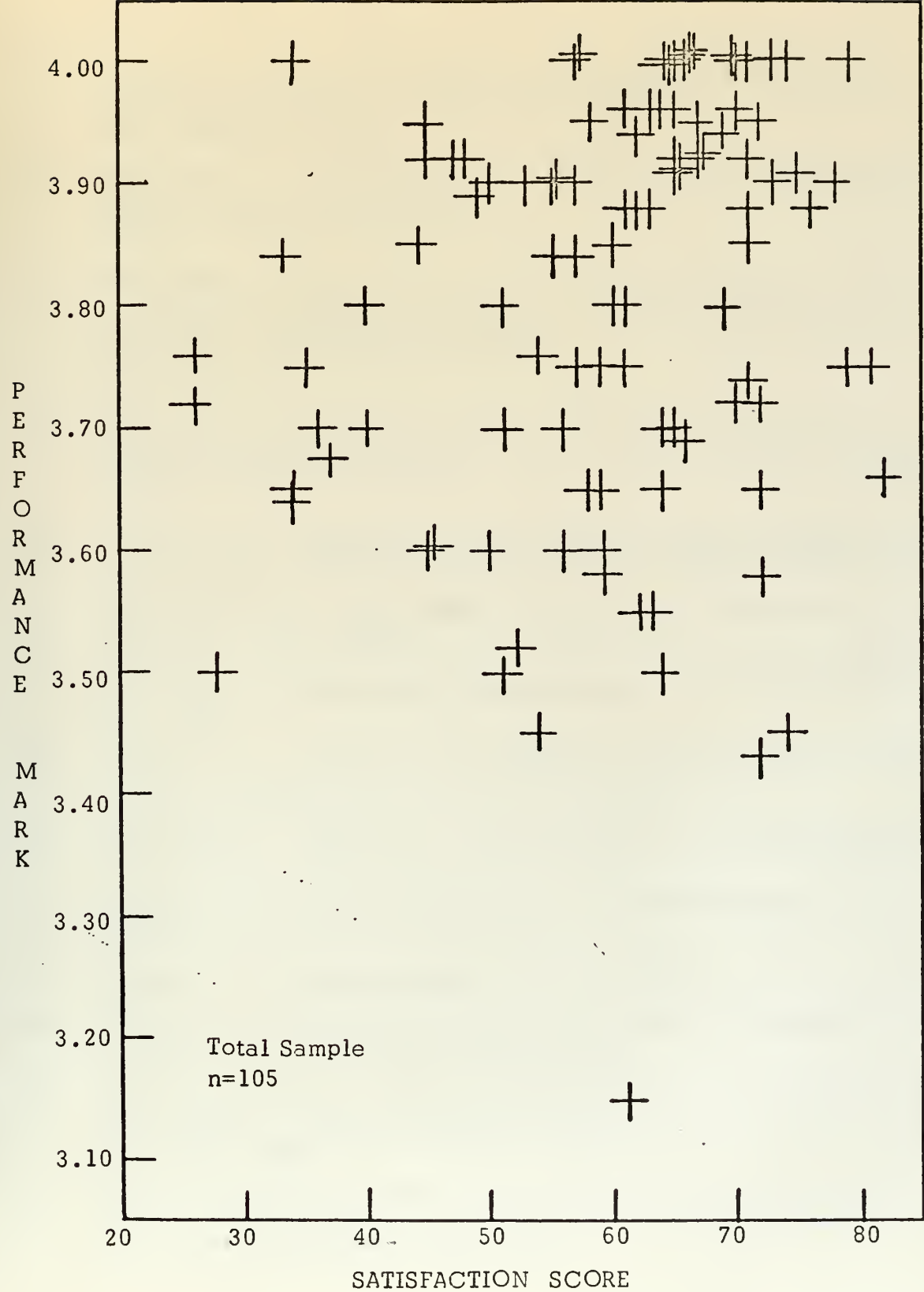
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KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Job Attitudes						
Job Satisfaction						
Job Performance						
Motivation						
Enlisted Men						
Performance Evaluation						



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